INTRODUCTION

Drug abuse affects the intrapersonal and interpersonal of its users. The intrapersonal problem causes a low communication ability to maintain emotions and self-optimism, while the interpersonal problem relates to the self-assessment of the drug users. Both problems trigger stress, making users irritable, restless, and anxious. Therefore, it is necessary to manage the participants’ stress through psycho-education in the drug rehabilitation process.

Spiritual Emotional Model (SPIEM) dhikr is one of the psychoeducational dhikrs that can be given as part of the rehabilitation programs for drug abusers. SPIEM dhikr provides a psychoneuroimmunology concept that combines a psychological and a biological approach, through a bio-behavioral mechanism. SPIEM dhikr provides a peaceful mind to maintain emotional stability and reduce stress. The decrease in stress levels after SPIEM dhikr can be observed based on cortisol levels and immunoglobulin G (IgG) levels.

IgG and cortisol are indicators of chronic stressors that describe immunological and neurologic reactions. Cortisol is a steroid hormone synthesized from cholesterol, which plays a role in the regulation of metabolism, inflammatory response, and immune function. Under stress conditions, cortisol levels increase due to the hypersecretion of adrenocorticotropic hormone (ACTH).

Although several studies have shown IgG as an indicator of inflammation, the decrease of IgG levels indicates stress reduction. The application of SPIEM dhikr in the drug rehabilitation process has never been done.

A previous study reported that 3×/week of SPIEM dhikr treatment for 3 weeks significantly impacted increasing IgG and decreasing cortisol of nurses at Sultan Agung Islamic Hospital, Semarang, Central Java, Indonesia. This study aims to determine the levels of cortisol and IgG of drug abusers during rehabilitation programs at Prof. Awaloedin Djamin Bhayangkara Hospital, Semarang, Central Java, Indonesia.
a confirmatory factor analyzed (CFA) approach. The affordable population who were also used as all subjects in this study were 31 police officers who underwent drug rehabilitation at Prof. Awaloedin Djamin Bhayangkara Hospital, Semarang, Central Java, Indonesia.

**SPIEM dhikr intervention in the rehabilitation program for drug abusers**

Psychoeducational intervention through SPIEM dhikr is carried out in the form of training. The SPIEM dhikr training is carried out by religious experts who have professor qualifications and are assisted by researchers. The training method uses 3 methods, namely: (1) teaching, where participants listen to the trainer's lecture, followed by a discussion, (2) guiding, where participants are asked to complete a case scenario given by the trainer and then present the results in front of the trainer and all participants, and (3) the environment, is designing the environment at the time of training following the actual conditions in the trained materials.

The psycho-education intervention includes learning media tools, a room for SPIEM training, and a module package developed based on the previous package. The materials and packages of the training modules have been discussed with public health experts, Islamic spiritual experts, psychologists and the Central Java Health Education and Training Center.

The SPIEM training consists of three phases, namely phase one (first week) with jaher dhikr material, phase two (second week) with sirr dhikr material, and phase three (third week) remembrance of the ruh/fiyi. Each phase was carried out for 7×90 minutes/day.

**Measurement of cortisol and IgG levels**

Blood samples of research subjects were taken before and after the intervention in each phase, as presented in Figure 1. Cortisol levels were measured in the blood serum before and after the intervention using ELISA method The Calbiotech, Inc. (CBI) Cortisol ELISA Kit. Measurement of IgG levels was used the Human IgG ELISA kit with blood serum samples of research subjects. The workings of the cortisol and IgG levels measurement refer to the guidelines listed in the analysis instructions of the kit.

**Analysis**

Data was analyzed by dependent T-test since the pretest and post-test data of cortisol and IgG have distributed normally. The p-value <0.005 was shown a significant different.

**RESULTS**

SPIEM dhikr intervention had a significant effect (p<0.05) on decreasing cortisol levels of drug abusers during the rehabilitation programs. IgG levels of the participants increased significantly (p<0.05) after 3 weeks of SPIEM training (Table 1). The distribution of decreases and increases is presented in Table 2. A total of 80.64% out of 31 participants showed a decrease in cortisol levels after 3 weeks SPIEM dhikr intervention. The increase in IgG levels after the SPIEM dhikr intervention was experienced by 74.19% of the total participants.

**DISCUSSION**

Drug abuse is a mental and behavioral disorder that repeatedly recurs. Therefore, medical rehabilitation is needed to free addicts from drug dependence. Long-term medical rehabilitation decreases the participants’ emotional, spiritual, and immunological conditions. This study was conducted to determine the effectiveness of psycho-education through SPIEM dhikr of drug abusers during rehabilitation programs at Prof. Awaloedin Djamin Bhayangkara Hospital, Semarang, Central Java, Indonesia.

SPIEM dhikr intervention for 3 weeks showed a significant effect in decreasing the cortisol levels of its participants. Stressor influences the psychosocial conditions of drug abusers, which should be coped with effectively. Stressor coping influences the endocrine nerves as indicated by the increase of immunological status. Psychological stressors activate neuroendocrine pathways that can ultimately lead to increased corticosteroid secretion. The strong stress stimuli suppress the immune system, thereby increasing susceptibility to infection; therefore, in this study it was shown that before the SPIEM dhikr intervention, all participants showed high cortisol levels and low IgG levels.

The SPIEM dhikr intervention for 3 weeks reduced the stress levels of drug rehabilitation participants, indicated by the decrease in cortisol levels and an increase of IgG levels. Psychoeducation using teaching, guiding, and environmental methods induces the secretion of stress-related hormones, especially cortisol. Training interventions affect the cognitive response of the human body so that a person can avoid various cognitive-related diseases such as dementia.

IgG, which is an anti-inflammatory indicator, has increased after the

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre test</th>
<th>Post Test</th>
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<tbody>
<tr>
<td>Cortisol (ng/ml)</td>
<td>107.65±7.43</td>
<td>77.84±3.99</td>
<td>0.031</td>
</tr>
<tr>
<td>IgG (mg/mL)</td>
<td>80.61±4.66</td>
<td>92.97±6.82</td>
<td>0.006</td>
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**Table 2.** Distribution of decreasing and increasing of cortisol and IgG levels after SPIEM dhikr intervention.
training. The comfortable emotion after performing the dhikr influence the immune response.\textsuperscript{26,27} Dhikr can build a positive stress perception followed by an improvement in the immune system.

In this study, we used 3 types of dhikr methods, jaheer (obvious), sirr (vague dhikr), and ruh/fi\textit{ly} (real dhikr) in the SPIEM intervention. Dhikr provides a good and comfortable emotion for the participants. SPIEM dhikr can be based as rehabilitation programs to accelerate the healing process of drug abusers. Dhikr is a communication method between moeslem abusers to their God, Allah SWT, which can motivate them to stop drug addictions. A previous study by Rita et al. reported that increase in the professional behavior of nurses at Sultan Agung Islamic Hospital, Semarang, Indonesia.\textsuperscript{17}

Although the samples of this study were limited to the drug abusers from police officers, SPIEM dhikr can be improved as one of the rehabilitation programs for drug abusers in the wider population.

CONCLUSION

Spiritual emotional model (SPIEM) Dhikr influences decreasing cortisol levels and increasing IgG levels in drug rehabilitation patients. It can be used as a recommendation for drug abuse patients’ rehabilitation phase.

AUTHOR CONTRIBUTION

All authors equally contribute to the study from the research concepts, data acquisitions, data analysis, statistical analyses, and revising the paper until reporting the study results through publication.

CONFLICT OF INTEREST

There is no conflict of interest for this manuscript.

FUNDING

None.